

Development of a novel PIKFYVE kinase inhibitor for the treatment of COVID-19

Grant Award Details

Development of a novel PIKFYVE kinase inhibitor for the treatment of COVID-19

Grant Type: Discovery Research Projects

Grant Number: DISC2COVID19-11901

Project Objective: To demonstrate ASR-149, a lead PIKFYVE inhibitor prevents SARS-CoV-2 infection of human alveolar type II cells, and confirm PIKFYVE as the relevant target of ASR-149.

Investigator:

Name:	Justin Ichida
Institution:	University of Southern California
Type:	PI

Disease Focus: COVID-19, Infectious Disease

Human Stem Cell Use: iPS Cell

Award Value: \$150,000

Status: Active

Grant Application Details

Application Title: Development of a novel PIKFYVE kinase inhibitor for the treatment of COVID-19

Public Abstract: **Research Objective**

Alveolar type II cells are the stem cells of the lung, and they are killed by SARS-CoV-2. We will determine if a novel PIKFYVE kinase inhibitor prevents SARS-CoV-2 infection of type II cells.

Impact

Although PIKFYVE inhibition blocks SARS-CoV-2 infection, no known PIKFYVE inhibitors have suitable drug-like properties. We would validate a novel PIKFYVE inhibitor for the treatment of COVID-19.

Major Proposed Activities

- Confirm ASR-149's efficacy against SARS-CoV-2 in human iPSC-lung type II cells
- Use antisense oligonucleotides to verify that PIKFYVE inhibition blocks entry of SARS-CoV-2 pseudovirus and live replication competent SARS-CoV-2 virus in human iPSC-lung type II cells

Statement of Benefit to California: If successful, these studies could lead to an effective treatment for COVID-19 that would reduce suffering from COVID-19 and enable Californians to live without social distancing requirements.

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